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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/985,674	11/05/2001	Yukiko Hanada	215754US2	4033

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EXAMINER

HAILE, FEBEN

ART UNIT PAPER NUMBER

2616

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/985,674		HANADA ET AL.	
	Examiner		Art Unit	
	Feben M. Haile		2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 2,4,8,10,12,15,19,23 and 28 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 11, 13-14, 16-18, 20-22, 24-27, 29-36 is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/3/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In view of applicant's amendment filed December 20, 2005, the status of the application is still pending with respect to claims 1-36.
2. Applicant has cancelled claims 2, 4, 8, 10, 12, 15, 19, 23, and 28, thus Examiner has withdrawn them from consideration.
3. The amendment filed is insufficient to overcome the rejection of claims 1 and 3, based upon new references Mimura (US 5,832,029) and Kojima et al. (US 5,886,999) as set forth in this Office action.

Claim Objections

4. Claims 5, 20 and 27 objected to because of the following informalities:

Regarding claim 5, the language "the synchronization signal indicates a received timing transmitted timing of long code" renders this claim unclear. Appropriate correction is required.

Regarding claim 20, the dependency refers to a cancelled claim 19. Appropriate correction is required.

Regarding claim 27, the repetitive language "to provide averaged correlation value averaged correlation value sequence averaged correlation value sequence" renders this claim unclear. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Nowara (US 6,445,713), hereinafter referred to as Nowara in view of Muto (US 5,933,424), hereinafter referred to as Muto, in view of Mimura (US 5,832,029), hereinafter referred to as Mimura.

Regarding claim 1, Nowara discloses a data channel generator multiplying a plurality of transmission data sequences by a plurality of short codes (**column 3 lines 45-49; a signal is diffused by a short code**), respectively; a long code multiplier multiplying the plurality of transmission data sequences multiplied by the plurality of the short codes by a common long code, respectively (**column 3 lines 45-49; the signal diffused by a short code is then diffused by a long code**); and a transmission element transmitting, by using a plurality of subcarriers, the transmission data sequences doubly multiplied by the short code and the long code (**column 3 lines 45-49; the signal, doubly diffused by the short and long codes, is multiplexed among a plurality of channels**).

Nowara fails to teach, a synchronization signal generator multiplying a transmission data sequence for synchronization signal only by a spreading code for synchronization signal; and transmitting the synchronization signal multiplied only by the spreading code for synchronization signal.

Muto discloses a sync signal generator producing a predetermined Walsh code, multiplying this code by another code produced by a PN generator, multiplying that

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output by a sync channel data signal to produce a sync signal, and then transmitting that signal (**figure 2 units 10, 12, 18, 19, 20, & 31 and column 3 lines 36-47**).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the sync signal generator taught by Muto into the signal measuring system taught by Nowara since they are both related to the analogues art of spread spectrum systems. The motivation for such a modification being to provide a device capable of avoiding instantaneous interruption

Nowara, Muto, or their combinations fail to teach the limitation wherein the synchronization signal generator multiplies the synchronization signal by the spreading code for synchronization signal at plural timings in a predetermined interval.

Mimura discloses a synchronization acquiring device that includes a spreading code generator in relation with a timing controller that produces codes using clock signals at predetermined intervals for multiplication with a signal from an external source (**column 2 lines 55-65**).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the timing controller from the synchronization acquiring device taught by Mimura into the signal measuring system taught by Nowara as modified by the sync signal generator taught by Muto since they are all related to the analogues art of spread spectrum systems. The motivation for such a modification being to provide a device capable of acquiring synchronization within a shortened period of time.

6. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Nowara (US 6,445,713), hereinafter referred to as Nowara in view of Muto (US 5,933,424), hereinafter referred to as Muto, in view of Kojima et al. (US 5,886,999), hereinafter referred to as Kojima.

Regarding claim 3, Nowara discloses transmitting, by using a plurality of subcarriers, a data sequence doubly multiplied by a short code and a long code (column 3 lines 45-49; a signal, which is doubly diffused by a short and long code, is multiplexed among a plurality of channels).

Nowara fails to teach transmitting, by using one for a plurality of subcarriers, a synchronization signal multiplied only by a spreading code for synchronization signal.

Muto discloses a sync signal generator producing a predetermined Walsh code, multiplying this code by another code produced by a PN generator, multiplying that output by a sync channel data signal to produce a sync signal, and then transmitting that signal (figure 2 units 10, 12, 18, 19, 20, & 31 and column 3 lines 36-47). Since Nowara discloses transmitting a doubly diffused CDMA signal by a plurality of channels, it is obvious that either one or a plurality of channels could also transmit the doubly multiplied sync signal generated by Muto.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the sync signal generator taught by Muto into the signal measuring system taught by Nowara since they are both related to the analogues art of spread spectrum systems. The motivation for such a modification being to provide a device capable of avoiding instantaneous interruption

Nowara, Muto, or their combinations fail to teach the limitation transmitting in a burst mode at specific intervals.

Kojima discloses an apparatus for transmitting a signal by using carrier of a burst mode at predetermined intervals of time (**column 1 lines 63-65**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of the transmitting apparatus taught by Kojima into the signal measuring system taught by Nowara as modified by the sync signal generator taught by Muto since they are all related to the analogues art of spread spectrum systems. The motivation for such a modification being to provide a device for uniformly controlling the output of data so as to enhance the quality of a communication line.

7. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Nowara (US 6,445,713), hereinafter referred to as Nowara in view of Muto (US 5,933,424), hereinafter referred to as Muto, in view of Kojima et al. (US 5,886,999), hereinafter referred to as Kojima, in view of Aramaki (US 6,370,134), hereinafter referred to as Aramaki.

Regarding claim 5, Nowara as modified by Muto and Kojima disclose the limitations of the base claims.

Nowara, Muto, Kojima, or their combinations fail to teach wherein a pattern of the spreading code of synchronization signal applied to the synchronization signal indicates a received timing of the long code.

Aramaki discloses detecting a pattern of symbols of a frame and using this information to determine the timing of a long code (**column 4 lines 43-47**). It is obvious that this method could be applied to the sync signal produced by the multiplication of a predetermined Walsh code, PN code, and a sync channel data signal disclosed by Muto.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method determining the timing of a long code as taught by Aramaki into the signal measuring system taught by Nowara as modified by the sync signal generator taught by Muto, as further modified by the method of the transmitting apparatus taught by Kojima since they are all related to the analogues art of spread spectrum systems. The motivation for such a modification being to reduce the long code identification time without increasing the hardware scale.

8. Claims 6 and 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Nowara (US 6,445,713), hereinafter referred to as Nowara in view of Muto (US 5,933,424), hereinafter referred to as Muto, in view of Kojima et al. (US 5,886,999), hereinafter referred to as Kojima, in view of Beasley et al. (US 6,246,675), hereinafter referred to as Beasley.

Regarding claim 6, Nowara as modified by Muto and Kojima disclose the limitations of the base claims.

Nowara, Muto, Kojima, or their combinations fail to teach wherein a transmitted timing of the synchronization signal indicates a received timing of the long code.

Beasley discloses a handset receives its timing and long code information from a sync channel transmitted from a base station, where the sync channel includes a system time (**column 5 lines 1-9**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of a handset receiving its timing and long code information from a sync channel information package as taught by Beasley into the signal measuring system taught by Nowara as modified by the sync signal generator taught by Muto, as further modified by the method of the transmitting apparatus taught by Kojima since they are all related to the analogues art of spread spectrum systems. The motivation for such a modification being to facilitate the determination of the location of a mobile handset without utilizing an excessively increased cable television bandwidth.

Regarding claim 7, Nowara as modified by Muto and Kojima disclose the limitations of the base claims.

Nowara, Muto, Kojima, or their combinations fail to teach wherein a transmitted timing of the synchronization signal and the subcarrier in which the synchronization signal is transmitted indicates a received timing of the long code.

Beasley discloses a handset receives its timing and long code information from a sync channel transmitted from a base station, where the sync channel includes (among others) long code state, system time, and a PN sequence offset index (**column 5 lines 1-9**). It is obvious that the sync channel information package could have also included the carrier in which the signal is transmitted from the base station to the handset.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of a handset receiving its timing and long code information from a sync channel information package as taught by Beasley into the signal measuring system taught by Nowara as modified by the sync signal generator taught by Muto, as further modified by the method of the transmitting apparatus taught by Kojima since they are all related to the analogues art of spread spectrum systems. The motivation for such a modification being to facilitate the determination of the location of a mobile handset without utilizing an excessively increased cable television bandwidth.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3, and 5-7 have been considered but are moot in view of the new ground(s) of rejection. Rejections based on the newly cited reference(s) can be found above.

Allowable Subject Matter

10. The indicated allowability of claims 5-7 is withdrawn in view of the newly discovered reference(s) to Aramaki (US 6,370,134) and Beasley et al. (US 6,246,675). Rejections based on the newly cited reference(s) can be found above.

11. Claims 9, 11, 13-14, 16-18, 20-22, 24-27, and 29-36 are allowed.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a) Kitagawa et al. (US 2002/0181489), Multicarrier CDMA Communication Device


b) Wang et al. (US 2005/0180311), OFDM Transceiver Structure with Time-Domain Scrambling

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Feben M. Haile whose telephone number is (571) 272-3072. The examiner can normally be reached on 6:00am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

fh 03/30/2006


RICKY Q. NGO
PATENT EXAMINER